Public Health England

# Health Protection Report
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**Infection (news) report**

**Volume 8 Number 38** Published on: **3 October 2014**

## Laboratory confirmed pertussis in England: data to end-August 2014

*This news report presents current pertussis activity to 31 August 2014, updating the previous report that included data to the end of May 2014 [1].*

The number of laboratory confirmed cases continued to increase between June and August 2014, in line with seasonal trends, and overall pertussis activity in England persists at raised levels compared to the years preceding the outbreak in 2012 (see figure). There have been nine deaths in infants born since the introduction of pertussis vaccination in pregnancy with six cases diagnosed in 2014 to the end of August. The mother had not been immunised in eight of the nine deaths in infants born after the pregnancy vaccination programme was introduced.

The immunisation programme for pregnant women continues to be important, particularly in light of the ongoing raised levels of pertussis in adults, older children and the recent infant deaths. There have also been recent key publications on the effectiveness and safety of the pertussis immunisation-in-pregnancy programme [2,3].

A level 3 incident was declared in April 2012 to coordinate the response to the ongoing increased pertussis activity observed in the third quarter of 2011 and extending into 2012 (see figure) [4]. In response to this ongoing outbreak, the Department of Health announced on 28 September [5,6] that pertussis immunisation would be offered to pregnant women from 1 October 2012 to protect infants from birth whilst disease levels remain high. Available data relating to the coverage, effectiveness and safety of the programme, its impact on disease and current epidemiology were considered by the Joint Committee on Vaccination and Immunisation (JCVI) at its June 2014 meeting and on the basis of these data it has advised that this programme should be continued for a further five years [7].

In infants under three months of age low numbers of cases have been sustained since December 2012 with fewer than 10 cases per month reported up to August 2013 and six or fewer reported each month between September 2013 and March 2014. Cases increased from April 2014, in line with expected seasonal increases, peaking at 21 cases in July; the highest number of monthly cases since 23 reported in November 2012. The greatest reduction in disease since the peak in 2012, however, has been in infants under six months of age who are targeted by the maternal pertussis vaccination programme. Disease incidence has, as

expected, continued to be highest in this age group but case reports are now in line with those seen before the 2012 peak. There have been six deaths reported in young babies (under 10 weeks) diagnosed with pertussis this year. Nine deaths have been reported in young babies with confirmed pertussis who were born after the introduction of the pregnancy programme on 1 October 2012. Eight of these nine babies were born to mothers who had not been vaccinated against pertussis, all of the nine babies were too young to be fully protected by vaccination themselves and none had received their first dose of pertussis-containing vaccine.

Pertussis activity in infants aged 6-11 months of age remained low. Confirmed pertussis also remains low in children aged 1-4 years and, whilst small numbers of cases were confirmed in those aged 5-9 years, these increased slightly from February 2014 and in the first eight months of 2014 exceeded the total in the same time period in 2013.

Pertussis activity in adolescents, teenagers and adults (aged from 10 up to and including 15 years of age) continues to decrease overall and total cases were lower in January to August 2014 when compared to the equivalent period in 2013 (table 1). A small seasonal peak was observed into August in those aged 15 years and over. Overall, confirmed cases of pertussis have been lower between January and August 2014 than in the first eight months of the two preceding years but cases continue to exceed those confirmed in years prior to 2012. This pertussis activity has been observed across all regions in England with relatively high numbers of cases in 2014 reported from Yorkshire and Humber and from Surrey, Sussex and Kent (table 2).

The pertussis vaccination in pregnancy programme continues to be important for the prevention of serious disease and death in young babies. To optimise protection of their babies, women should ideally be immunised between 28-32 weeks gestation but may be immunised up to week 38 of pregnancy. Pregnant women who remain unprotected can be offered vaccination after 38 weeks as can new mothers who have not been vaccinated in pregnancy. Vaccination at this stage is not ideal, however, as it would potentially only directly protect the mother against disease and thereby just reduce the risk of exposure to her infant.

Approximately 60% of all pregnant women in England are currently being vaccinated in pregnancy [8]. This is important because around 75% of all cases of pertussis in babies occur before they can be protected by even the first dose of infant vaccine and when there is a high risk of serious disease. The babies that have died from pertussis in England over recent years all acquired pertussis in the first few weeks of life and eight of nine babies who died between January 2013 and August 2014 were born to mothers who were not vaccinated during

pregnancy. Information generated from the pertussis immunisation in pregnancy programme in England has shown high levels of protection against disease in babies born to vaccinated women. Babies born to women vaccinated at least a week before delivery had a 91% reduction in the risk of disease in their first weeks of life when compared to babies whose mothers had not been vaccinated [2]. In addition, no safety concerns were found relating to pertussis vaccination in pregnancy in a study undertaken by the Medicines and Healthcare Products Regulatory Agency [3].

**Provisional number of laboratory confirmed cases of pertussis in England by age group and month: January 2011 to August 2014**

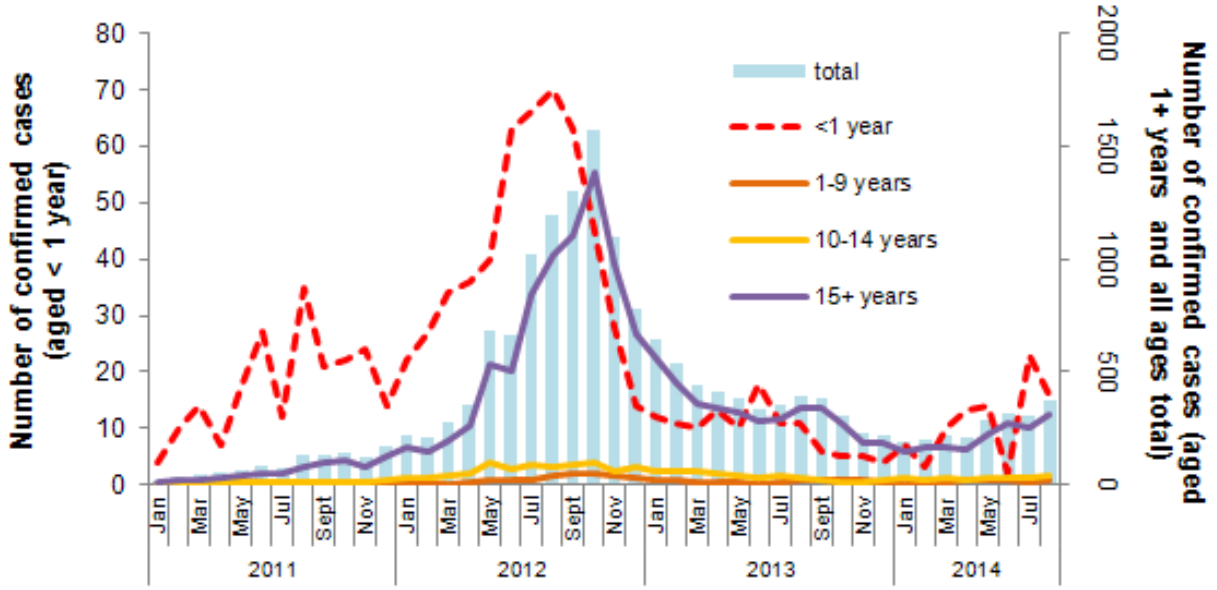


**Table 1. Provisional number of laboratory confirmed cases in England, 2008-2014 by age group: January to August**

| Year | Month | <3 months | 3-5 months | 6-11 months | 1-4 years | 5-9 years | 10-14 years | 15+ years | All ages |
|---|---|---|---|---|---|---|---|---|---|
| 2008 | Jan - Aug | 135 | 24 | 6 | 18 | 13 | 103 | 311 | 610 |
| 2009 | Jan - Aug | 75 | 19 | 1 | 18 | 19 | 67 | 277 | 476 |
| 2010 | Jan - Aug | 40 | 7 | 2 | 7 | 9 | 30 | 151 | 246 |
| 2011 | Jan - Aug | 101 | 19 | 6 | 8 | 11 | 61 | 294 | 500 |
| 2012 | Jan - Aug | 285 | 58 | 15 | 35 | 89 | 483 | 3655 | 4620 |
| 2013 | Jan - Aug | 66 | 23 | 7 | 36 | 64 | 362 | 2933 | 3491 |
| 2014 | Jan - Aug | 69 | 10 | 9 | 24 | 77 | 233 | 1678 | 2100 |

**Table 2. Provisional number of laboratory confirmed cases in England, 2008-2014 by PHE Region and PHE Centre: January to August**

| | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
|---|---|---|---|---|---|---|---|
| PHE Region and Centre | Jan - Aug | Jan - Aug | Jan - Aug | Jan - Aug | Jan - Aug | Jan - Aug | Jan - Aug |
| London | 68 | 62 | 29 | 55 | 348 | 362 | 325 |
| Anglia and Essex | 46 | 41 | 11 | 41 | 375 | 291 | 164 |
| East Midlands | 42 | 38 | 13 | 53 | 509 | 389 | 160 |
| South Midlands and Hertfordshire | 19 | 9 | 7 | 28 | 214 | 109 | 85 |
| West Midlands | 56 | 30 | 10 | 32 | 320 | 283 | 177 |
| Midlands and East of England Total | 163 | 118 | 41 | 154 | 1418 | 1072 | 586 |
| Cheshire and Merseyside | 31 | 22 | 8 | 14 | 75 | 119 | 60 |
| Cumbria and Lancashire | 19 | 30 | 22 | 32 | 95 | 82 | 31 |
| Greater Manchester | 18 | 8 | 9 | 11 | 126 | 75 | 51 |
| North East | 34 | 14 | 28 | 46 | 193 | 188 | 47 |
| Yorkshire and Humber | 41 | 36 | 26 | 37 | 568 | 388 | 300 |
| North of England Total | 143 | 110 | 93 | 140 | 1057 | 852 | 489 |
| Avon, Gloucestershire and Wiltshire | 72 | 49 | 14 | 42 | 593 | 342 | 118 |
| Devon, Cornwall and Somerset | 32 | 24 | 28 | 20 | 198 | 200 | 81 |
| Sussex, Surrey and Kent | 43 | 50 | 13 | 53 | 540 | 435 | 275 |
| Thames Valley | 56 | 39 | 21 | 22 | 173 | 85 | 101 |
| Wessex | 33 | 24 | 7 | 14 | 293 | 143 | 125 |
| South of England Total | 236 | 186 | 83 | 151 | 1797 | 1205 | 700 |
| England Total | 610 | 476 | 246 | 500 | 4620 | 3491 | 2100 |

## References


1. Confirmed pertussis cases in England and Wales: update to end-May 2014, *HPR* **8**(28): news, 18 July 2014.

2. Amirthalingam G, Andrews N, Campbell H, *et al*. Effectiveness of maternal pertussis vaccination in England: an observational study, *Lancet* 2014.

3. Donegan K, King B, Bryan P. Safety of pertussis vaccination in pregnant women in the UK: observational study, *BMJ* 2014.

4. A level 3 incident is the third of five levels of alert under the HPA's Incident Reporting and Information System (IERP) according to which public health threats are classified and information flow to the relevant outbreak control team is coordinated. A level 3 incident is defined as one where the public health impact is significant across regional boundaries or nationally. An IERP level 3 incident was declared in April 2012 in response to the ongoing increased pertussis activity. (See *HPR* **6**(15)).

5. "Pregnant women to be offered whooping cough vaccination", 28 September 2012. Department of Health website.

6. "HPA welcomes introduction of whooping cough vaccination for pregnant women as outbreak continues", HPA press release, 28 September 2012, HPA legacy website.

7. Joint committee of Vaccination and Immunisation minutes.

8. Pertussis Vaccination Programme for Pregnant Women: vaccine coverage estimates in England, October 2012 to March 2014 (PHE statistics).

**Travel health**

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## WHO polio vaccination recommendations for travellers to infected countries

Temporary vaccination recommendations for travellers to countries exhibiting active transmission of wild polio virus (WPV) – issued under the International Health Regulations (IHR) by the WHO in May this year – have been extended, affecting travellers to Afghanistan, Cameroon, Equatorial Guinea, Ethiopia, Iraq, Israel, Nigeria, Pakistan, Somalia and Syria [1].

Vaccination recommendations for travellers to these countries from England Wales and Northern Ireland, endorsed by the Department of Health for England, have been issued by the PHE-commissioned National Travel Health Network and Centre (NaTHNaC) [2].

The destination countries fall into two groups: those that are currently “exporting” WPV (Pakistan, Cameroon, Equatorial Guinea and Syria) and those that are infected but not exporting the virus (Afghanistan, Ethiopia, Iraq, Israel, Nigeria and Somalia).

Although the risk of importation and local transmission of WPV in the UK from visitors from infected counties remains extremely low, PHE Centre Screening and Immunisation Leads (SILs) and Health Protection Teams (HPTs) are being advised of the details of the WHO recommendations because of the significant number of long-term visitors travelling to some of the affected countries from the UK who will be affected by the vaccination requirements.

For example, travellers who intend to visit polio-exporting countries for four weeks or more should be aware that proof of vaccination, given four weeks to 12 months before departure from the country, may be required on exit. Failure to produce this documentation may result in vaccination at the point of departure. Live oral polio vaccine may be used in exporting countries; this type of vaccine is safe for most people but contra-indicated in some cases, including pregnant women and the immuno-suppressed, who should therefore receive an inactivated polio-containing vaccine prior to travel. [1].

**References**

1. WHO statement on the second meeting of the International Health Regulations Emergency Committee concerning the international spread of wild poliovirus (3 August 2014): http://www.who.int/mediacentre/news/statements/2014/polio-20140803/en/.

2. National Travel Health Network and Centre (24 September 2014. Polio vaccine recommendations updated for travellers from England, Wales and Northern Ireland: http://www.nathnac.org/pro/news/polio_vacc_rec_PHEIC_240914.htm.

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## Ebola virus disease in west Africa: an update

The outbreak of Ebola virus disease (EVD) in West Africa continues to escalate. As of 1 October 2014, the cumulative number of cases attributed to EVD stands at 7,492 including 3,439 deaths. Affected countries fall into two categories: those with widespread and intense transmission (Guinea, Liberia, and Sierra Leone), and those with an initial case or cases, or with localised transmission (Lagos and Port Harcourt regions in Nigeria, Dakar in Senegal, and Dallas in the United States of America). WHO anticipates the current outbreak could continue for at least six to nine months.

More detailed information is published in PHE weekly epidemiological updates [1]. These updates and additional EVD guidance documents can be found on the "Ebola virus disease: clinical management and guidance" webpage [2]. PHE continues to operate a level 3 incident response and is co-ordinating support to the UK government and other organisations.

**References**

1. PHE Ebola Epidemiological Updates: https://www.gov.uk/government/publications/ebola-virus-disease-epidemiological-update.

2. Health Protection Collection (landing page) "Ebola virus disease: clinical management and guidance": https://www.gov.uk/government/collections/ebola-virus-disease-clinical-management-and-guidance.

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## Respiratory

## Laboratory reports of respiratory infections made to the CIDSC from PHE and NHS laboratories in England and Wales: weeks 36-39/2014

Data are recorded by week of report, but include only specimens taken in the last eight weeks (i.e. recent specimens)

**Table 1. Reports of influenza infection made to PHE Colindale, by week of report**

| Week | Week 36 | Week 37 | Week 38 | Week 39 | Total |
|---|---|---|---|---|---|
| Week ending | 7/9/14 | 14/9/14 | 21/9/14 | 28/9/14 | |
| **Influenza A** | **3** | **5** | **–** | **4** | **12** |
| Isolation | – | 1 | – | – | **1** |
| DIF * | – | – | – | – | **–** |
| PCR | 1 | 2 | – | 2 | **5** |
| Other † | 2 | 2 | – | 2 | **6** |
| **Influenza B** | **1** | **2** | **–** | – | **3** |
| Isolation | – | – | – | – | **–** |
| DIF * | 1 | – | – | – | **1** |
| PCR | – | 2 | – | – | **2** |
| Other † | – | – | – | – | **–** |

* DIF = Direct Immunofluorescence. † Other = "Antibody detection - single high titre" or "Method not specified".

**Table 2. Respiratory viral detections by any method (culture, direct immunofluorescence, PCR, four-fold rise in paired sera, single high serology titre, genomic, electron microscopy, other method, other method unknown), by week of report**

| Week | Week 36 | Week 37 | Week 38 | Week 39 | Total |
|---|---|---|---|---|---|
| Week ending | 7/9/14 | 14/9/14 | 21/9/14 | 28/9/14 | |
| Adenovirus* | 22 | 18 | 16 | 20 | **76** |
| Coronavirus | 1 | 2 | – | 3 | **6** |
| Parainfluenza† | 16 | 12 | 12 | 12 | **52** |
| Rhinovirus | 74 | 107 | 87 | 174 | **442** |
| RSV | 7 | 9 | 9 | 15 | **40** |

* Respiratory samples only. † Includes parainfluenza types 1, 2, 3, 4 and untyped.

**Table 3. Respiratory viral detections by age group: weeks 36-39/2014**

| Age group (years) | <1 year | 1-4 years | 5-14 years | 15-44 years | 45-64 years | ≥65 years | Un-known | Total |
|---|---|---|---|---|---|---|---|---|
| Adenovirus * | 14 | 22 | 12 | 15 | 7 | 6 | – | **76** |
| Coronavirus | – | 2 | 1 | 3 | – | – | – | **6** |
| Influenza A | – | 1 | – | 9 | 2 | 1 | – | **13** |
| Influenza B | 1 | – | – | 1 | – | 1 | – | **3** |
| Parainfluenza † | 16 | 5 | 3 | 6 | 13 | 9 | – | **52** |
| Rhinovirus | 144 | 94 | 48 | 82 | 44 | 29 | 1 | **442** |
| Respiratory syncytial virus | 22 | 9 | – | 4 | 1 | 3 | 1 | **40** |

* Respiratory samples only.
† Includes parainfluenza types 1, 2, 3, 4 and untyped.

**Table 4 Laboratory reports of infections associated with atypical pneumonia, by week of report**

| Week | Week 36 | Week 37 | Week 38 | Week 39 | Total |
|---|---|---|---|---|---|
| **Week ending** | **7/9/14** | **14/9/14** | **21/9/14** | **28/9/14** | |
| *Coxiella burnettii* | – | – | – | – | **–** |
| Respiratory *Chlamydia* sp.* | – | – | – | 1 | **1** |
| *Mycoplasma pneumoniae* | 5 | 7 | 4 | 7 | **23** |
| *Legionella* sp. | 7 | 6 | 13 | 13 | **39** |

* Includes *Chlamydia psittaci*, *Chlamydia pneumoniae*, and *Chlamydia* sp detected from blood, serum, and respiratory specimens.

**Table 5a Reports of Legionnaires Disease cases in England and Wales, by week of report**

| Week | Week 36 | Week 37 | Week 38 | Week 39 | Total |
|---|---|---|---|---|---|
| **Week ending** | **7/9/14** | **14/9/14** | **21/9/14** | **28/9/14** | |
| Nosocomial | – | – | – | – | **–** |
| Community | 4 | 1 | 4 | 5 | **14** |
| Travel Abroad | 1 | 4(1*) | 6 | 6 | **17** |
| Travel UK | 2 | 1 | 3 | 2 | **8** |
| **Total** | **7** | **6** | **13** | **13** | **39** |
| Male | 6 | 5 | 8 | 8 | **27** |
| Female | 1 | 1 | 5 | 5 | **12** |

Thirty eight cases were reported with pneumonia and one case was reported with non-pneumonic infection: 20 males aged aged 42-83 years and twelve females aged 50 to 75 years. Fourteen cases had community-acquired infection. One death was reported in a 75 year-old female.

Twenty-five cases were reported with travel association: Belgium (1), Belgium/France/Italy (1), Egypt (1), Greece/United Kingdom (1), Italy (2), Morocco (1), Spain (3), Turkey (4), United Arab Emirates (3) and United Kingdom (8).

**Table 5b. Reports of Legionnaires Disease cases cases in England and Wales, by PHE Centre: weeks 36-39/2014**

| Region/Country | Noso-comial | Community | Travel Abroad | Travel UK | Total |
|---|---|---|---|---|---|
| **North of England** | | | | | |
| North East | – | – | – | – | **–** |
| Cheshire & Merseyside | – | 1 | 1 | – | **2** |
| Greater Manchester | – | – | – | – | **–** |
| Cumbria & Lancashire | – | – | – | – | **–** |
| Yorkshire & the Humber | – | – | 1 | – | **1** |
| **South of England** | | | | | |
| Devon, Cornwall & Somerset | – | 1 | – | – | **1** |
| Avon, Gloucestershire & Wiltshire | – | – | – | 2 | **2** |
| Wessex | – | 1 | 1 | 1 | **3** |
| Thames Valley | – | – | – | – | **–** |
| Sussex, Surrey & Kent | – | 2 | 1 | 1 | **4** |
| **Midlands & East of England** | | | | | |
| East Midlands | – | 2 | 5 | – | 7 |
| South Midlands & Hertfordshire | – | 1 | – | – | 1 |
| Anglia & Essex | – | 1 | – | – | 1 |
| West Midlands | – | 1 | 4 | – | 5 |
| **London Integrated Region** | | | | | |
| London | – | 4 | 3 | 3 | **10** |
| **Public Health Wales** | | | | | |
| Mid & West Wales | – | – | – | – | **–** |
| North Wales | – | – | – | – | **–** |
| South East Wales | – | – | 1(1*) | 1 | **2** |
| **Miscellaneous** | | | | | |
| Other | – | – | – | – | **–** |
| Not known | – | – | – | – | **–** |
| **Total** | **–** | **14** | **17** | **8** | **39** |

* Non-pneumonic cases